Claims

What is claimed is:

1. A micro electro discharge machining method, comprising:

changing a relative distance between a tool electrode and a workpiece at a frequency and in an amplitude as desired;

controlling discharge pulse output in synchronization with the change in the relative distance between the tool electrode and the workpiece; and

performing electro discharge machining between the tool electrode and the workpiece.

2. The micro electro discharge machining method according to claim 1, wherein

the tool electrode is transferred with a pattern of a plate electrode by electro discharge machining with said plate electrode, said plate electrode being provided with a plurality of holes in said pattern,

during said electro discharge machining process, a relative distance between the tool electrode and the plate electrode is changed at a frequency and in an amplitude as desired, and

a discharge pulse is output in synchronization with the change in the relative distance between the tool electrode and the plate electrode.

3. The micro electro discharge machining method

according to claim 2, wherein

multiple hole groups are arranged and formed in the plate electrode, each said hole group including a plurality of holes, and

the tool electrode is produced by electro discharge machining sequentially using the multiple hole groups in the plate electrode.

4. A micro electro discharge machining apparatus, comprising:

a tool electrode;

a circuit for generating pulsed electric discharge between the tool electrode and a workpiece;

a first device for positioning the workpiece in an XY-plane;

a second device for positioning the tool electrode in a Z-direction orthogonal to the XY-plane;

a vibration member for changing a relative distance between the tool electrode and the workpiece at a frequency and in an amplitude as desired; and

a controller for controlling a discharge pulse in synchronization with the change in the relative distance between the tool electrode and the workpiece.

5. The micro electro discharge machining apparatus according to claim 4, further comprising a plate electrode provided with a plurality of holes to be used for producing

the tool electrode, wherein

the plate electrode is positioned in the XY-plane by the first device,

the circuit generates pulsed electric discharge between the tool electrode and the plate electrode, and

the controller controls a discharge pulse in synchronization with the change in a relative distance between the tool electrode and the plate electrode.

6. The micro electro discharge machining apparatus according to claim 5, wherein

the plate electrode is provided with multiple hole groups each including a plurality of holes.